Stoller
Hanford Office

HGLP-LDR-001

# 299-W19-107 (C5193)
## Log Data Report

### Borehole Information:

| Borehole: | 299-W19-107 (C5193) | | Site: | 200-UP-1 | |
|---|---|---|---|---|---|
| Coordinates (WA St Plane) | | GWL[1] (ft): | 271.1 | GWL Date: | 04/11/06 |
| North | East | Drill Date | Ground Level Elevation | Total Depth (ft) | Type |
| Not available | Not available | 04/06 | Not available | 430 | Becker |

### Casing Information:

| Casing Type | Stickup (ft) | Outer Diameter (in.) | Inside Diameter (in.) | Thickness (in.) | Top (ft) | Bottom (ft) |
|---|---|---|---|---|---|---|
| Steel | ? | 6.24 | 6.0 | 0.12 | ? | 430 |
| Steel | 3.65 | 9.0 | 8.0 | 0.50 | 3.65 | 430 |

### Borehole Notes:

The Becker drilling system uses a dual-wall casing. Air is forced down the annulus and cuttings are returned inside the inner casing. Total wall thickness is 0.620 in., increasing to 1.115 in. at the casing joints that occur at 10-ft intervals. The casing dimensions are derived from published values for Becker drill casing. Logging data acquisition is referenced to the ground surface.

### Logging Equipment Information:

| Logging System: | Gamma 1N | | Type: | SGLS (60%)<br>SN: 45TP22010A |
|---|---|---|---|---|
| Effective Calibration Date: | 04/05/06 | **Calibration Reference:** | DOE-EM/GJ1183-2006 | |
| | | **Logging Procedure:** | MAC-HGLP 1.6.5, Rev. 0 | |

### Spectral Gamma Logging System (SGLS) Log Run Information:

| Log Run | 1 | 2 | 3 Repeat | | |
|---|---|---|---|---|---|
| Date | 04/10/06 | 04/11/06 | 04/11/06 | | |
| Logging Engineer | Pope | Pope | Pope | | |
| Start Depth (ft) | 430.0 | 298.0 | 50.0 | | |
| Finish Depth (ft) | 297.0 | 1.0 | 6.0 | | |
| Count Time (sec) | NA | NA | NA | | |
| Live/Real | R | R | R | | |
| Shield (Y/N) | N | N | N | | |
| Sample interval (ft) | 1.0 | 1.0 | 1.0 | | |
| ft/min | 1.0 | 1.0 | 1.0 | | |
| Pre-Verification | AN010CAB | AN011CAB | AN011CAB | | |
| Start File | AN010000 | AN011000 | AN011298 | | |
| Finish File | AN010132 | AN011297 | AN011343 | | |
| Post-Verification | AN010CAA | AN011CAA | AN011CAA | | |

| Log Run | 1 | 2 | 3 Repeat | | |
|---|---|---|---|---|---|
| Depth Return Error (in.) | LOW 4.25 | LOW 2.5 | 0.0 | | |
| Comments | Fine-gain adjustments made at 430' and 429' (files -000 and -001, respectively). | Fine-gain adjustment made at 292' (file -006). | Repeat section. | | |

## Logging Operation Notes:

Pre- and post-survey verification measurements were acquired in the Amersham verifier, SN 118.
A centralizer was installed on the sonde during logging.
Maximum borehole depth achieved was 430.0 ft, before the sonde un-weighted.

## Analysis Notes:

| Analyst: | Pope | Date: | 08/18/06 | Reference: | GJO-HGLP 1.6.3, Rev. 0 |
|---|---|---|---|---|---|

Pre-run and post-run verifications for the logging system were performed before and after data acquisition. All acceptance criteria were met for the verification spectra.

Casing thickness (additive for the 6- and 9-in. casings) is approximately 0.620 in. The combined thickness at casing joints is 1.115 in. This thickness results in a significant reduction in gamma activity detection as the detector passes by a casing joint. However, it is not practical to correct individual data points for the effect of casing joints. The influence of the thick joints is apparent on the total gamma plot, where reduced count rates are exhibited at approximately 10-ft depth intervals.

SGLS spectra were processed in batch mode using APTEC SUPERVISOR to extract the total gamma count rate from individual files. No corrections are made for dead time, casing, or water.

## Log Plot Notes:

Log plots are provided for the total gamma and dead time. A repeat log section is also presented.

## Results and Interpretations:

A decrease in gamma activity occurs at each casing joint, where the increase in wall thickness results in greater attenuation of gamma activity. No anomalous gamma activity was observed. This observation suggests no significant concentrations of man-made radionuclides. An increase in total gamma activity from about 175 to perhaps 185 ft may be coincident with the fine-grain sediments and caliche in the lower Hanford Formation.

The repeat section indicated good agreement of the total count rate.

[1] GWL – groundwater level
[2] N/A – not applicable

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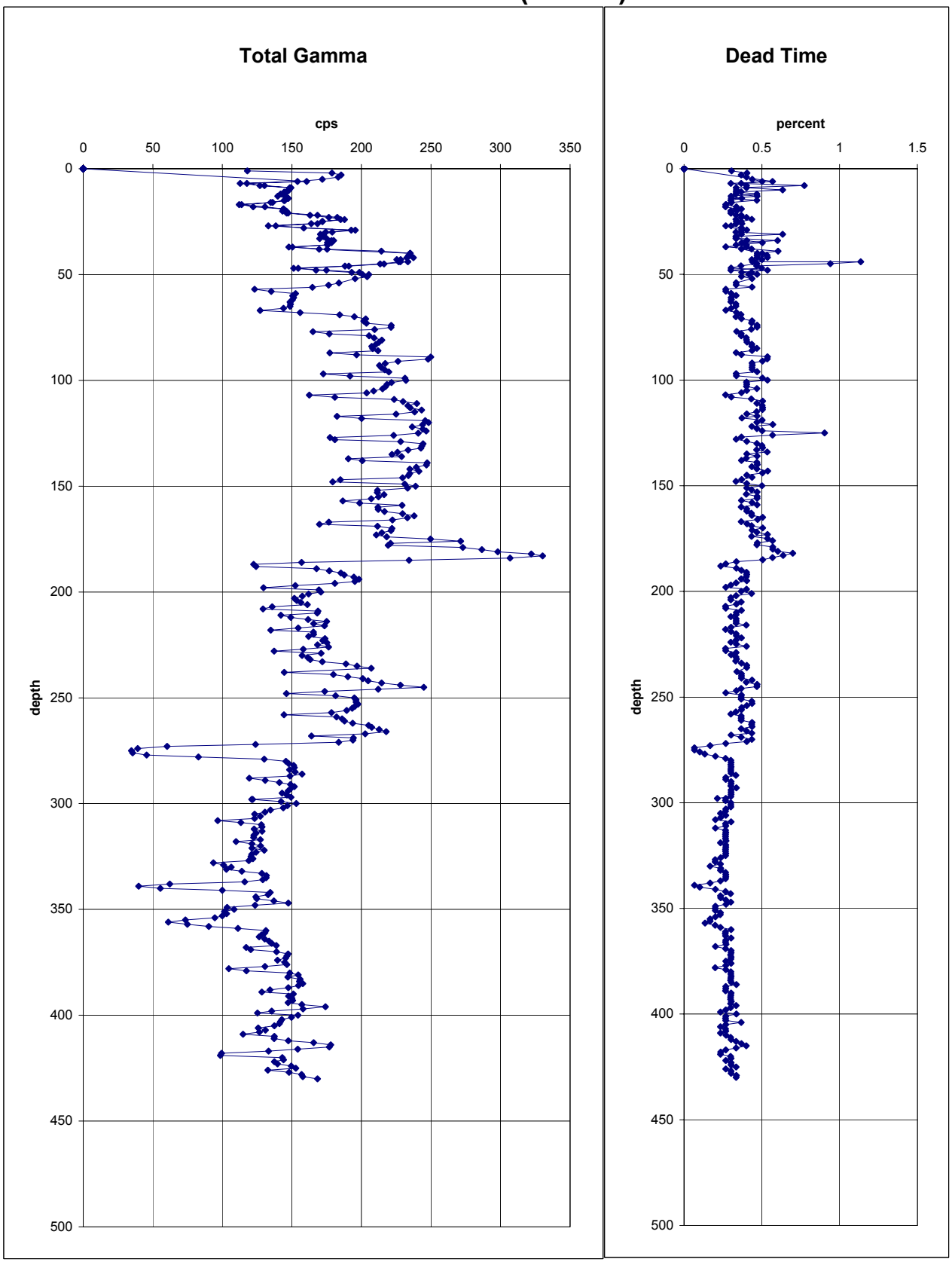

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